Fig 1

Fig 2

Fig 2

OBSERVATIONS

ON

SOME TUMOURS

OF

THE MOUTH AND JAWS.

By ROBERT LISTON, Esq.,

SURGEON TO THE NORTH LONDON HOSPITAL, ETC., ETC.

FROM THE TWENTIETH VOLUME OF THE MEDICO-CHIRURGICAL TRANSACTIONS, PUBLISHED BY THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON.

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By ROBERT LISTON, Esq.,

SURGEON TO THE NORTH LONDON HOSPITAL, ETC., ETC.

READ JUNE 7TH, 1836.

The attention of the profession has been more particularly directed of late years to the diseases of the jaws, in consequence of the novel and bold operations which have been resorted to by some surgeons for their removal and permanent eradication. Many of these affections were formerly looked upon as perfectly irremediable by any means, and indeed I can recall to my recollection several cases which I witnessed when I first embarked in the profession, which were given up as incurable after severe though ineffectual attempts to control their growth by escharotics and actual cautery, which would now be fearlessly and successfully attacked, and effectually removed by operative procedure. Many of the diseases of this region are still, however, in some stages, from their intrinsic nature and disposition, beyond the reach of the science and art of surgery, and one principal ob-

ject which I have in view in the following paper is to point out what I consider to be the characters by which those tumours which may with safety and propriety be interfered with, may be discriminated from those affections, on the other hand, which no conscientious or well disposed surgeon ought or would think of touching with a knife. I hold it to be a maxim never to be forgotten or departed from, that no operation, far less one hazardous to life, should be entered upon, unless there be a fair prospect and strong probability of ultimate success. No man is entitled to put the life of another in jeopardy unless, after all the suffering and risk attendant upon this last resource, success is likely to crown his efforts.—In all diseases, wherever situated, of a malignant tendency, when from their extent and duration there is a certainty, or even a probability of the neighbouring parts being affected, or so disposed as to take on the same action, or where the lymphatic system is contaminated, very little prospect or hope of successful issue can be held out. We are therefore called upon to look to the previous history of such diseases, their origin, progress, and duration,—to the signs of the malady,—and from these to form, so far as we are able, a correct diagnosis.

The mouth is the seat of tumours of very various consistence, structure, and dispositions ; presenting themselves in different situations, and proceeding from tissues of different kinds. The parulis and spina ventosa of the jaw, swellings of acute or chronic nature, containing generally a purulent secretion, may be here merely alluded to. The latter often attain an

immense size, and have their origin very frequently in alveolar abscess, in cysts growing from and attached to the apices of the roots of decayed teeth. They cannot be got rid of in some stages without recourse to a somewhat severe operation. Occasionally connected with cysts containing a serous fluid, more or less of solid swelling is found to exist. In one case which came under my notice, and in which the lower jaw was the seat of the disease, the cyst occupied the situation of the last large molar and wisdom tooth, which had apparently been blighted. The cyst was opened and obliterated by setons, but some years afterwards a growth betwixt the lamellæ of the bone, which was at first of inconsiderable bulk and indolent, began to enlarge and ultimately attained such a size and presented such an appearance as to render the removal of the bone from near the symphysis to the articulation absolutely necessary. The operation was perfectly successful and the cure permanent.

The epulis, (well described by the late Mr. John Bell, in his "Principles",) a solid growth from, and of the consistence of, the gum, first appearing between the teeth, adhering firmly to the periosteum around their necks, and gradually spreading itself in the same structure, often attains a troublesome and alarming size; the deeper parts become involved, the alveolar processes, the periosteum of the sockets and teeth; these latter are loosened, separated and projected; the section of such tumours often exhibits spiculæ of osseous matter shooting into a dense fibrous structure, which adheres to the surface of the bone. Its seat is

generally in front of the mouth and in the lower jaw, but occasionally it is met with in the parts investing the molares. It seems to originate from disease of the teeth, from crowding or irregular distribution of these bodies, from injury accidental or inflicted in ill directed operations for the removal of teeth,—the bruising of the gum, for instance, by the bolster of the old key instrument or pelican. But the disease is occasionally met with where the teeth are sound, have room enough for their development, where no injury has been received, and in fact without any assignable cause. These are not generally "tumores mali moris", though occasionally they do degenerate, contaminate the neighbouring parts, and are liable to be reproduced, and sometimes after some interval from their apparently complete extirpation.

A disease of a more troublesome nature seems however to proceed originally from the sockets of the teeth, from the periosteum of the root. It appears as a soft vascular growth from the apex or side of the fang, (the soft medullary fungus filling up and projecting from the hollow of a decayed tooth seems to have a different origin): this is loosened, the gums separate and become injected and flabby, they swell out and form a tumour investing the teeth, which one after another become displaced, and after being removed, their roots are sometimes found highly injected with blood. Copious sanious discharge is furnished from the soft and fungous mass, which bleeds on the slightest touch; the osseous tissue, comprising the alveolar processes, and even the substance of the

jaws, is changed into a soft lardaceous or brain-like mass. Of this disease in its incipient and advanced stage, there are to be seen specimens in many collections. It is not improbable that many of the more solid and less malignant diseases, involving the upper and lower maxillary bones, have a somewhat similar origin.

The progress of these diseases is various; in some it is rapid, and the growth is soft and unlimited. It soon bursts through the walls and investments of the bone, adhesions are formed to the neighbouring parts, which take on an unhealthy action, a fungous growth of a soft and bad character is thrust out into the mouth, the lymphatics are soon affected, and the case is speedily in a hopeless condition.

In the upper jaw, a most malignant and intractable disease is met with, often traceable to long continued irritation in the alveolar processes or sockets, from the presence of decayed or bad portions of teeth. The disease, it is probable, sometimes commences in the manner already indicated, and spreads to the lining membrane of the maxillary antrum, or it may and must often have its origin in that tissue originally. We find, in fact, though more rarely, the same morbid structure springing out of the frontal and sphenoidal sinuses primarily. This disease is so well known that it would be out of place here to enter into a description of its progress or anatomical characters. Its accession is insidious, the patient has painful sensations in the side of the face, a feeling of distension, there is some increased discharge from the

nostril, and the cavity becomes obstructed. Lodged deeply amongst the bones of the face, it makes its way at first very gradually, drawing into the same action the investing parts, the bone and its exterior covering, the teeth become loosened, the walls of the cavity are protruded and softened, œdematous matting and discoloration of the cheek follows, fungous growths shoot out into the nose, towards the mouth through the thin anterior parietes, or through the palate, presenting a soft, ragged, foul ulcer, (not very appropriately designated cancerous by some writers,) through the tuberous process backwards to the throat, and ultimately towards the eye through the floor of the orbit, extruding this organ, and involving it in a frightful, soft, and sometimes bleeding mass. To this disease the term osteo-sarcoma (not a very good or appropriate one in any instance) has been often applied. The bone is involved secondarily in many cases in the morbid mass, is expanded, softened, and wasted by its blasting influence. It is not a tumour of bone or a conversion of it into flesh, or pulpy matter. The march of this disease is usually exceedingly rapid. Some tumours in this situation, soft and brain-like, and from the first of a bad kind, grow more slowly and have no great tendency to bleed.

Tumours composed of erectile tissue have been found to occupy the cavity of the antrum, and cases are recorded by Gensoul and by Professor Pattison, in which the signs and characters before and after operation confirmed this supposition : these however

seem to be rare in comparison with those of the encephaloid nature.

But the superior maxilla is found now and then to be involved in a tumour of a more simple and manageable nature, commencing in the osseous structure or periosteum. Some rare cases also of extensive deposit, of very hard osseous matter ultimately filling up the cavities and fossæ of these bones, are occasionally met with. The fibrous or fibrinous tumours, as they are more properly denominated by that indefatigable pathologist Mr. Kiernan, are very generally traceable to some external injury, (to which indeed the majority of enlargements of parts and new growths in all situations are to be attributed,) and are of comparatively slow growth. From its more exposed situation, the lower jaw is more frequently found affected with swellings of a simple or fibrous character than the upper, and it may be deduced from what has already been remarked, that the affections of the latter bone are generally of a malignant kind; those of the former more benign. As it has been already remarked, however, simple tumours involving the upper jaw and neighbouring bones, principally the os malæ are occasionally met with, and the lower jaw is not exempt from the attacks of the softer and more troublesome degenerations.

The simple tumour, whether involving the upper or lower jaw, differs in consistence and in form also from those soft, lardaceous or pulpy and brain-like masses, whose appearance and progress I have shortly alluded to. They attain though slowly a great size, they pre-

sent a *globular* or *botryoidal* form, displace the surrounding soft and hard parts, project from the countenance, and deranging the features produce great and frightful deformity. The skin may be thinned and pervaded by enlarged venous branches; it is discoloured, but not incorporated even in an advanced stage with the morbid mass, nor are any of the surrounding tissues contaminated. The projection towards the mouth, often large and passing down by the side of the opposed teeth and jaw, is hard and elastic, and conveys the feeling of brawn interspersed with bony particles; but it is covered by a continuation of the mucous lining of the cavity slightly thickened and altered, furnishing an inconsiderable discharge, and that neither offensive nor of a bad quality. This growth in the mouth presents indentations made by the teeth with which it comes in contact. The hard palate when the upper jaw is involved, is generally covered by a thick layer of tumour, which projects over, and lies in contact with, but is not adherent to it, nor to the gums supporting the teeth of the opposite side. It obscures the view of the velum and fauces, and by impeding respiration makes the patient very uncomfortable, renders his supply of nourishment incomplete, and even puts his life in jeopardy. The tumour of the lower jaw again, by the displacement of the tongue and interruption to the performance of its functions, is equally inconvenient and dangerous. In the records of surgery, I can find very few such tumours described as affecting the superior maxilla, and my enquiries respecting the cases which have

been subjected to operation, which are as yet unpublished, would lead me to conclude that the diseases interfered with, have not all been of this benign and tractable nature. In many of these the morbid action has not ceased, the growth has been reproduced, and the patients have not in any way been benefited by the treatment.

I shall not attempt to enumerate those cases in which soft growths have been imperfectly scooped out from the antrum maxillare, and then attacked with caustics or hot irons, or those again of a harder consistence which have been plucked out by main force and piecemeal, whether got at by the division of the cheek or not. I have seen many such operations practised, and one, in which I myself operated unsuccessfully many years ago, is reported in the Edinburgh Medical and Surgical Journal. The result of such operations was, with few exceptions, most unsatisfactory.

I find that fifteen cases have been laid before the profession and the public, in which it appears that the whole or greater part of the superior maxillary bone has been extirpated, (in one of them, by the way, incisions were made for this purpose on two separate occasions, and but little of the disease removed.) Eleven of these patients died, either from the immediate effects of the operation or from a return of the disease. The operators were Messrs. Lizars*,

* Medical Gazette, Vol. V. p. 92; Lancet, Vol. II. 1829, 30, p. 54.

Gensoul *, Syme †, Robert ‡, Scott §, Earle ||, Guthrie ¶, and Hetting **. In two of the four who are said to have been cured, the tumour is admitted to have been soft, and probably of a bad kind. In fact, out of the fifteen, one case only appears to have been, at the period when interfered with, very favourable for the operation; the first, viz., recorded by Gensoul. That tumour he describes as globular, of firm consistence, fibro-cartilaginous, and of a homogeneous structure. M. Gensoul's second case also seems to have terminated favourably, and is one of those already alluded to as composed of erectile tissue.

In the course of the last fifteen years, I have been consulted regarding a great many tumours involving the upper and under jaws of various consistence and extent, a great many of them, as might be expected, of a very bad kind. Some had commenced in the soft parts, in the skin or glands, as the encephaloid or carcinomatous degenerations, and had in their ravages taken in the osseous tissue. Others commencing in

* Lettre Chirurgicale sur quelques maladies graves du sinus maxillaire. Paris, 1833.

† Edinburgh Medical and Surgical Journal, 1829, 34, 35; and Lancet, 1834, 35.

‡ Lancet, Vol. I. 1834, 35, p. 261.

§ Lancet, Vol. I. 1830, 31, p. 319; Lancet, Vol. I. 1831, 32, p. 604.

|| Medical Gazette, Vol. IX., p. 374 and 454.

¶ Medical Gazette.

** Provincial Medico-Chirurgical Transactions.

the latter tissue were decidedly malignant, and far advanced in their growth; these I had not the boldness, I might say fool-hardiness, to meddle with. Some of them were afterwards made the subject of operative procedure, but the results did not tend much to enhance the reputation of the operators, or to advance the interests of the profession.

I have been fortunate enough, however, in the course of my practice to meet with several cases of the simple or fibro-cartilaginous tumour; these have been operated upon by me successfully, and with most satisfactory ultimate results. I propose now to lay before the Society an abridged account of those cases, accompanied with representations of some of the tumours previous to, and after removal. It may not be out of place here to give also a short history and comparative view of the different modes of operating which have been pursued, and to indicate those which appear to be most advisable in the various affections under consideration.

The tumours of the gums cannot be satisfactorily or permanently removed unless the teeth which they embrace are extracted, whether these be in a sound state or not. Indeed some slight and more simple swellings will subside on the removal of the remains of diseased teeth, which have acted as the exciting causes of mischief. There can be no doubt as to the propriety and absolute necessity of taking away all source of irritation as a preliminary step to operations of any kind in this cavity, whether the disease has arisen in the mucous surface, in the substance of

the lips or tongue, in the glands, gums, or osseous structure, or in the cavities contained therein.

An incision should be made with a strong pointed knife, so as to surround the base of the tumour, and wide of the morbid structure; when the alveolar processes are involved, these must be cut away with cross cutting forceps, and if to any depth, perpendicular sections should be previously made on each side of the mass with a fine saw. When there is reason to dread that the structure is at all of a bad kind, when unsuccessful operations have been previously practised, besides the free excision, it will be advisable, after the oozing of blood has ceased, to apply either the actual or some potential cautery to the exposed surface. In many cases this is not demanded, as a permanent cure is often found to follow the clean extirpation. The incisions either in the upper or lower jaw, must necessarily be made so free as to take in the whole morbid mass. I have found it necessary to remove extensively the floor of the antrum and to cut down the alveolar ridge of the lower jaw, leaving merely a thin line of the base, in order to attain this end in some cases. This proceeding is preferable, when it can be accomplished to the cutting across and removing the whole thickness of the bone; deformity is thus in a great degree guarded against, and the corresponding teeth of the upper and lower jaw meet. But even after the removal of great portions of this bone, as by disarticulation, and by some attention on the part of the patient, (he being provided with, and being directed to wear for some time

and during the night, caps fitted to the teeth of the sound side above and below, and soldered together,) the remaining half of the bone, during the cicatrization within the mouth, is prevented from being drawn awry, and much annoyance is thus averted.

The malignant tumours, those of soft consistence, which lose themselves insensibly in the neighbouring tissues, if interfered with at all must be attacked by some very effectual operative procedure, and in their very earliest stage. The fore part of the antrum so affected, as already noticed, has been exposed and opened in very many cases by incisions of the cheek and the morbid growth been taken out, and this has been followed up by the application of strong escharotics or of cauteries. The result of such operations has seldom been at all satisfactory, as can be readily understood. The difficulty, even in favourable cases, of taking away after this fashion the whole of the contaminated parts is very great, and there is reason to fear that very frequently the progress and fatal termination has been, under such circumstances, accelerated. One case is reported as cured by Desault *, by cutting and cauterizing; another, as cured by Sir A. Cooper †; the incision in that case being followed up by repeated applications of strong arsenical solution. Some more solid fibrous polypi, as they have been denominated, have been grappled with and seized by forceps after the cheek has been laid

* Œuvres Chirurgicales, Tome II. p. 165.

† Bell on the Diseases of the Teeth, p. 283.

open, and thus forcibly plucked away after great suffering, sometimes with little advantage to the patient and with much trouble to the surgeon.

Many extensive and severe operations have, since the year 1826, been practised on the upper jaw, principally for the eradication of malignant diseases, and, as I have said, with very indifferent success; so much so, indeed, that the operation has got into disrepute with the profession and public, as would any other proceeding, however regular or well established, if practised indiscriminately and without judgment.

The merit of suggesting the possibility and advantage of removing the entire superior maxillary bone, when the seat of disease, is, without doubt, due to Professor Lizars, for several years my colleague in the Edinburgh Royal Infirmary. The proposal, with directions for the operation, were published in his anatomical work, dated 1826. M. Gensoul, of Lyons, states, in his monograph on the subject, that he performed his first operation in 1827. Both these gentlemen seem to be sanguine as to the efficacy of this operation in ridding patients of malignant disease, and it is, without doubt, conceived on very sound and good surgical principles, with the intention of amputating in sound structure. But the cases must, from the nature of things, be of rare occurrence, in which benefit can accrue to the patients who are so unfortunate as to be seized with disease of a bad character in this situation, by their submit-

ting to operative procedure of any kind. Whenever the morbid growth has made its way through the parietes, when even a soft polypous-looking growth has resided but for a short time in the corresponding nostril, furnishing a copious, thin, and fœtid discharge, and connected with the encephaloid tumour of the antrum, then there is a certainty of the disease repullulating from the parts which surrounded the original nidus of the mischief. The surface may heal over, the cavity may appear to be healthy, and contract for a short period, but all the hopes of the patient and surgeon will soon be blasted by the reappearance of a new and rapidly increasing fungous mass. In many of the cases reported, the operator has found it impossible to get away all the altered parts; he has found the ethmoid cells full of soft pulpy matter; he has been unable to get away the attachments and roots of the tumour from betwixt the pterygoid processes; he has vainly hoped to destroy the unhealthy structure and action by escharotics or hot irons. In fact, the bones composing the most delicate part of the base of the cranium have been involved, and the disease is far beyond the reach of surgical means. In the very earliest stage of this horrible affection, when it commences in the maxillary antrum, there is a possibility, though remote, of permanently eradicating it; but, unfortunately, whilst still a chance remains of doing so, alarm is not felt by the patient, and advice is not applied for. When it is obtained, in consequence of

misapprehension as to its true nature, the disease is too often trifled with, and the only rational and proper means of cure delayed through irresolution or timidity. I was fortunate enough to meet with a case, undoubtedly of this bad nature, in its commencement. The operation was resorted to immediately. The patient has enjoyed good health for many years, and without doubt will now remain free from any disease in this region, connected with that extirpated.

CASE I.

"13, Golden Square, London, April 6th, 1836.

"MY DEAR SIR,

"Agreeable to your request, I transmit you the particulars of the case of the boy who was the subject of operation by you, for the removal of the superior maxillary bone; and whose case was not inserted in the Hospital Journal, in consequence of my indisposition at that period.

"William Thomson, from Stirling, æt. 16, a lad of spare habit, was admitted into the Royal Infirmary of Edinburgh, Dec. 22d, 1832, with a swelling of the left side of the face. On examination, this projection presented the following appearances. It was circumscribed, and strictly confined to the antrum, the parietes of which were expanded and apparently softened, especially on its anterior aspect. The tumour had a very elastic feel, and was a little painful when pressed. The corresponding nostril was quite free and unobstructed. The boy stated that he had al-

ways enjoyed tolerably good health; he has often had very restless nights; and been much troubled with pain, which was uniformly referred to the situation of the first molar tooth, which had been in a decayed state for a considerable time previous to his discovering any swelling of the cheek. Upon interrogating the lad more minutely, it was ascertained that he had observed some swelling two years previous to his admission into the hospital. He thought that the swelling had much increased during the last two months. I shall not allude to the manner in which the operation was conducted, as nothing unusual occurred. I may, however, observe, that very little blood was lost. The patient went on well till the fifth day, when he was attacked with erysipelas, which was then prevailing in the hospital. He had a great deal of fever and delirium, and ultimately, upon the rather sudden retrocession of the inflammation from the surface, he became suddenly comatose. These alarming symptoms were removed by the exhibition of stimulants, and the application of a very large blister, extending from the occiput to the middle of the back. In two or three days, all the unfavourable symptoms subsided; the boy rapidly recovered, and was dismissed from the hospital on the 28th of January following the performance of the operation, and with very little perceptible deformity. I suppose it would be unnecessary to refer to the appearance which the tumour presented immediately after its removal, as it exhibited the same

pale, soft, and homogeneous structure then, as at the present time. Believe me to remain, my dear Sir,

"Yours, very faithfully,

"G. JAMES,

"Late House Surgeon of the Edinburgh Royal Infirmary.

"R. LISTON, ESQ."

The morbid growth in this case had not attained any very large size. Its structure is decidedly brain-like, presenting a smooth, greasy section. At the upper part, towards the alveolar processes, it is broken up and bloody-looking, more especially at that part attached to the roots of the decayed molar tooth. I should be inclined to think, both from the history of the case, and from the morbid appearances, that the disease had commenced at this point, and extended to the lining membrane of the cavity, which it now fully occupies. That the progress and termination of this case, had not the diseased mass been timeously removed, would have been most unfavourable, cannot for an instant be doubted, and the patient has yet to congratulate himself that no reproduction of the tumour has taken place*. This disease is perhaps more frequently met with in persons of the middle period of life, yet this is not the only case I have witnessed in young subjects. One of the most rapidly malignant and frightful cases I have met with, was in the person of a young midshipman, of thirteen or fourteen years; the tumours filled the

* A preparation of the morbid growth, which was exhibited to the Meeting, is above referred to by the author.—SEC. R.M.C.S.L.

mouth and throat, and nostrils; the fungous protrusion had bled most profusely. The eye was beginning to project, and there was much œdema of the lids, and in fact of the whole side of the face.

Through the kindness of Mr. Forrest, surgeon, at Stirling, I am enabled to bring down the history of this case to a recent period. The following very satisfactory account is extracted from a letter, dated "Stirling, Upper Bridge Street, May 20th, 1836."

"The boy, Thomson, operated on by Mr. Liston, for osteosarcoma of the upper jaw, is alive and in excellent health. He is now a stout young man, following the trade of a shoemaker. I sent for him to-day, and examined his face very carefully. It is entirely free from disease. In fact, no surgical operation, whether you consider the state of the parts, or the general health of the person, ever succeeded better."

The three following cases are of a totally different character, and some of them having attained a most alarming size, they were dangerous and annoying, even from this cause, and also from their awkward position. The circumstances connected with the first three cases, are obtained from the journals of the Royal Infirmary of Edinburgh, and from the gentleman who at the time held the situation of house surgeon. The last case is taken from the records of the North London Hospital. Sketches of the last two patients made before and after the opera-

tions, (of the latter within a month,) will illustrate the mode of operating pursued, and the line of incision which was followed, with little deviation, in all. (See plates II. and III.)

CASE II.

Janet Campbell, from Grantoun, Inverness-shire, æt. 26, admitted Sept. 20th, 1830, into the Edinburgh Infirmary. Four years previous to her admission she received a blow on the left cheek by falling on the corner of a table. Little attention was at the time paid to the accident, but about two months and a half afterwards, one of the molar teeth gradually loosened and dropped out. Then a small, firm, fleshy tumour began to project from the surrounding gum, and slowly extended till the greater part of the alveoli on that side became involved, and the teeth loosened. Four months after the tumour was first observed, all the teeth in the left side of the upper jaw were extracted, a perforation was made through the gum into the antrum, and a small quantity of puriform matter evacuated. The aperture was kept open, and various washes injected: about a year ago it closed, and a slight discharge of matter flowed from the left nostril for some time. A perforation was again made into the antrum, but no matter came away. The cheek now began to enlarge, slowly at first, but during the last three or four months the tumour has developed rapidly.

Two days after her admission into the Infirmary,

the operation was performed. An incision was made with a strong and straight bistoury, from near the inner angle of the left eye, to the free margin of the upper lip, near to the labial fossa, detaching the nasal cartilage from the subjacent bone; another incision was made from the angle of the mouth to the malar origin of the masseter. The triangular flap thus formed, was then dissected up towards the orbit and os malæ, so as completely to expose the tumour. The malar connection of the bone, and the hard palate to the left of the mesial line, were divided by a small saw; separation of the other attachments was effected with the strong bone pliers and the bistoury. The soft palate was uninjured. Hæmorrhage was restrained during the operation, by an assistant compressing the carotid artery. Not more than three or four ounces of blood were lost; and after removal of the bone, not one ligature was required; there was merely a slight oozing from the surface. Compresses of lint were placed in the cavity, and the facial flap having been replaced, was carefully approximated and retained by interrupted and twisted sutures.

By the third day adhesion of the flap was perfect; the stitches and needles were withdrawn, and a few slips of adhesive ribbon placed over the part. The lint was gradually removed from the cavity, which was found florid and granulating.

No untoward symptom has occurred; the patient keeps the cheek supported by dossils of lint, and the

internal wound is contracting rapidly by healthy granulation. The countenance is rather improved, certainly not disfigured; and the eye, though deprived of the orbital plate of the maxillary bone, has its natural appearance, excepting a very slight eversion of the lower lid.

The tumour was found to be of a dense fibro-cartilaginous structure, with a small cavity in its centre containing purulent matter, probably the effect of the last puncture. This patient presented herself at the hospital in the end of 1833 or beginning of 1834, perfectly well, and free of disease.

CASE III.

Mrs. Fraser, æt. 40, from Banchory Ternan, Aberdeenshire, was admitted into the Royal Infirmary of Edinburgh, on the 13th of October, 1834, under the care of Mr. Liston.

About six years ago she received a blow over the antrum from the head of a child, immediately after which she perceived a slight hardness in the part which had been struck. This did not increase for some time after, but at the end of two years a distinct tumour was felt on the cheek. It grew very rapidly during the two following years. At this time she became pregnant, when, she says, it increased very much, especially after the quickening of the child. She has never suffered very much pain in it. About a year ago she had another child, since which time the catamenia have never appeared. The tumour

seemed to her to grow more vascular after she had passed the menstrual period, and since then bleeding to a slight extent has occurred from the unbroken surface of the gums and inner surface of the tumour at those times when she should have been unwell.

On her admission the tumour presented the following appearance.—The left side of the face is completely occupied by an immense growth, which obstructs the eye of that side, rising to a level with th forehead, extending back to the ear, and bulging down below the inferior maxilla, but not attached to it. From the part of the tumour next to the ear to that part in front of the face it measures about nine inches. The mouth is completely drawn to the left side, and there is a constant discharge of saliva from it. She keeps a handkerchief constantly applied to it by the hand, to concentrate the sound of her voice when speaking, and to collect the saliva. She is unable to open her mouth above three-fourths of an inch. The tumour bulges considerably into the cavity of the mouth, but there is no difficulty of swallowing. The nose is also twisted to the left side, but she can breathe through it pretty easily. From these distortions the face has a truly frightful appearance. Numerous large veins are seen beneath the integuments of the tumour, and arteries of considerable size are felt beating in it. Her general health is good, and she has firmly made up her mind to undergo the operation for removal of the tumour, on account of its inconvenience and unsightliness.

An assistant being ready to compress the common carotid, the soft parts were divided by an incision which traversed the mesial surface of the tumour, and terminated in the angle of the mouth. The alveolar process, (the two central incisors having been previously extracted,) the palatine plate, and the nasal process of the maxilla were then cut with the forceps. An incision was carried along the upper surface of the tumour under the inferior eyelid to over the junction of the malar and frontal bones, and prolonged from that, in the line of the zygoma, to near the auricle. The bones were then cut, into the spheno-maxillary fissure and through the zygomatic arch,—all this was done with but little interference with the vascular supply. The connection being loosened, and the tumour shaken to its base, the soft parts underneath were divided, and the mass was turned out without difficulty. The patient, who had borne all this with the utmost courage and without a murmur, was removed from the sitting position and laid on a mattress on the operating table, with the view of preventing syncope, and the bleeding vessels were secured. Nothing interrupted her recovery, and the deformity is much slighter than would be imagined. The patient returned the following summer to have a palate fitted; on account of a miscarriage she remained for a short time in the infirmary. She now enjoys excellent health, as appears by the following extract of a letter received on the 12th instant from Francis Adams, Esq., surgeon, Banchory, the learned translator of

the works of Paulus Ægineta, under whose care she has been, and by whom she was recommended to consult me.

"Having seen the mother of the lady with the gold palate yesterday, I am enabled to assure you that she continues perfectly well. She finds Nasmyth's apparatus answer admirably, and has completely recovered her voice, which you may remember was somewhat indistinct for some time after the operation. In a word, she is one of the most happy women I am acquainted with."

CASE IV.

Ann Struther, from Hull, æt. 21, was admitted into the North London Hospital, February 24th, 1836, under the care of Mr. Liston. Four years ago she was much annoyed with pain in the left side of the head and face, occasionally attended with swelling, which she attributed to exposure to cold. Pain in the teeth of the left superior maxilla supervened, and a tumour appeared on the outer surface of the gum. Three teeth were extracted, with the hope of giving relief, but the swelling afterwards rapidly increased. When it attained the size of the end of the thumb it was removed by the knife. This was about six months after the first complaint of pain. The tumour, however, soon reappeared, and continued to enlarge for about eighteen months, when she again submitted to a severe operation, by which the alveolar process of the superior maxillary bone, and a portion of the tumour, were removed. This operation was attended with and fol-

lowed by profuse hæmorrhage, but the wound healed nevertheless at the end of a week. Two or three weeks after this operation the tumour again appeared, and it has continued to increase in size up to the present time. When last removed it was about the size of a hen's egg. It is now as large as a moderate-sized cocoa-nut, causing great deformity. The mouth is drawn to one side, and the vision of the left eye partly obstructed. She complains of very little pain, and her general health is good. The swelling is of firm consistence, and appears to involve the whole of the superior maxillary bone; internally it occupies the whole of the palate, but is unattached on the right side; a probe can be passed under it for some distance. It extends as far back as the finger can reach, and projects over the velum, concealing a great part of it. The patient came to town expressly to have the tumour removed, and on Saturday, the 27th February, the operation was performed.

After removing the central incisor of the left or opposite side, which was rendered necessary by the extent of the tumour, Mr. Liston commenced an incision a little below the inner angle of the eye and carried it obliquely under the corresponding ala of the nose, detaching its cartilage from the bone, then through the lip into the mouth, in the mesial line. An incision was next made from the prominence of the cheek to the angle of the mouth. The flap thus formed was reflected upwards. The tumour, it was now ascertained, extended considerably backwards,

and it was necessary to make another incision, nearly at right angles, on the outer perpendicular one, in the line of the zygomatic arch; the tumour was thus exposed throughout its whole extent. With strong cutting forceps the nasal process of the superior maxilla was divided; the operator next cut through the zygomatic arch, near the auricle, and then through the malar bone at the transverse facial suture into the spheno-maxillary fissure; the diseased maxilla was separated with great facility from its fellow of the opposite side, by strong scissors, leaving the palatine plate of the palate bone and velum palati entire and untouched; the superior maxillary nerve was carefully divided. The diseased mass was now readily removed, involving the whole of the superior maxillary bone, the whole of the malar inferior spongy bone, and the zygomatic process of the temporal bone. The internal maxillary artery, which bled not very freely, was immediately tied, and the edges of the flap brought together by five points of twisted and two of interrupted suture. The whole proceeding occupied under six minutes. The tumour was of a firm fibrous structure, interspersed with spiculæ of bone, perfectly entire. Not the least particle of diseased structure could possibly be left behind, as the tumour came out unbroken and surrounded by cellular cyst. The wound was completely healed, and the tumefaction almost gone, on the 26th March; she was in good health and spirits, and the cheek on which the operation was performed looked nearly as well as the other; up to the present time she has not had one

bad symptom, and the space occupied by the diseased mass has gradually decreased in size. She returned home soon after the date of the last report*.

In a great many of the operations which, in the commencement of this paper, I have referred to, a dread of hemorrhage seems to have pervaded those concerned, and precautionary measures were accordingly adopted, as by Messrs. Lizars, Scott, Syme, Guthrie, and Earle. In some of the cases the vessels going to the parts to be removed were exposed by incision, so that they might be compressed more effectually. In others temporary ligatures were applied, and in some the principal branch of the external carotid was secured. In others the current of the blood in the common carotid was arrested by deligation, temporary or permanent; this had not, however, in some of the cases the effect of moderating in any great degree the flow of blood, or of adding to the patient's safety. In one instance, already alluded to, the common carotid was tied, incisions of the cheek

* Extract of a letter from Mr. Sherwin, surgeon, Hull, dated May 31, 1836, regarding Mrs. Struther's case.

"Her case goes on beautifully; not the slightest vestige of disease, and what is of great importance, that hideous cavity in the roof of the mouth is so far filled up that a hole no bigger than the tip of my finger remains to be closed, which, from the appearance of its edges, is likely to fill up almost entirely. The œdema is going off from the eyelid; the contour of the countenance is well preserved notwithstanding the cheek being fallen forward considerably, so much so indeed as to bring Mr. Liston's second incision into the middle. I very much doubt whether she will ultimately require an artificial palate."

and palate, if I am not misinformed, were accomplished; but still, owing to profuse hæmorrhage, the after proceedings were delayed. In eight days after this the common trunk of the temporal and internal maxillary was tied on the side opposite to the diseased cheek, and a second and unsuccessful attempt to remove the whole of the tumour and bones made. In all the cases in which I have been concerned, the temporary arrestment of bleeding was provided for and accomplished by pressure on the common carotid of the affected side. The common carotid has been tied successfully, in cases of tumour composed of erectile tissue in the orbit, and it is said that the same success has followed the practice when the disease was located in the antrum of Highmore. The notion that malignant growths which affect this region should be controlled, far less overcome and cured, by partially cutting off and weakening the supply of blood to them for a short time, cannot be seriously entertained by any one acquainted with their disposition, action, and progress.

Some of my patients lost not more than eight or ten ounces of blood in all; very few vessels in any of them required ligatures. In the second case none were tied, and in the last only one, and that did not bleed very freely. The circumstance of the internal maxillary not furnishing much blood, during or after the operation, may be accounted for readily, from the nature of the operation, the course of the artery, and the place at which it enters the morbid mass; there is scarcely a possibility of reaching this vessel so as

to divide it with the knife: it is elongated, and its internal coats must give way as the tumour is depressed: it thus furnishes very little if any blood. After the removal of the tumour it appears so long, and generally projects so much into the chasm, that it can readily be seized even with the fingers, and secured by ligature if necessary.

The line of incision which I have followed may be seen on the sketch, Plate III. fig. 2., from the patient Struther, the subject of the fourth operation; she, however, bears the marks of incisions made in a previous operation; one of these from the angle of the mouth towards the ear is most conspicuous. These were the marks of incision made by Mr. Lyon, then practising at Hull, who, I doubt not, had he been well assisted in the operation would have accomplished the complete removal of the disease. The line from the external angle of the eye to the corner of the mouth, and the other from the internal canthus to the middle of the upper lip, mark the line of incisions followed by me, and are similar to those, as regards their direction, which were made in the first and second cases. The incisions in the third case were necessarily varied. The integument was thinned from extreme distension, and pervaded by numerous arterial and venous branches, and thus much discoloured. I feared to save much of this skin, having seen in a former occasion the bad effects of such proceeding. The case alluded to was one of enormous tumour of the lower jaw, requiring disarticulation. The skin thus thinned was saved in sufficient quantity to cover the surface

exposed after removal of the growth; this integument possessing little power of life, sloughed after only little excited action had taken place, the sloughing, with much swelling, from putrid infiltration of the cellular tissue under the fascia, extended to the fore and lateral parts of the neck, and the patient perished. The discolouration of the integument in Case III., Plate II. fig. 1., did not alarm me, as it would have done had the subjacent tumour been of a malignant kind, and it was not removed from any dread of diseased action springing up from this tissue, as is usually the case in that latter form of disease when any, the smallest patch of inflamed and discoloured skin happens to be left. Though a great deal of skin was taken away the deficiency was not so great as might have been anticipated,—a plate filling up the palate was very ingeniously fitted by my friend Mr. Nasmyth, of Edinburgh, with a portion attached to fill up the space (not very large) in the cheek. Besides removing the deformity, the patient is thus enabled to swallow comfortably and articulate distinctly.

During the cure, and until the edges of the opening in the palate have cicatrized, and until the aperture has contracted as far as it is inclined to do, the patient is rendered more comfortable by wearing a little paste made of crumb of bread well kneaded; this prevents foreign matters lodging in the wound, improves speech, and forms no bad dressing, a poultice in fact to the part. It is wonderful how much, after these operations, the parts come together. The opening in the patient Struther, from which the tumour,

of no inconsiderable size, was removed, on her departure for home, five weeks after the operation, would barely admit the point of my thumb. It will close further, and then I doubt not that some of my friends who attend to the maladies, derangements, and deformities of the mouth will lend me their assistance in closing what remains, artificially *. The line of incision is, if I may presume to say so, preferable to that pursued by M. Gensoul and others, as leaving much less deformity, and affording equal facility for the ulterior object of the operation. No dressing has been applied in any of the cases to the external wounds. When it is of consequence to promote immediate union, and thus prevent disfigurement as far as possible, I have thought that any application on the line of incision is apt to interfere with and mar this object.

It must appear evident to all, that the more rapidly, consistently with safety, these operations (under any circumstances of great severity and attended with much suffering to the patient) be accomplished, the better. A great deal of time may be saved by adopting means to divide the bones cleverly. I have uniformly used for this purpose the cutting forceps, which some years ago were introduced into surgical apparatus, I believe, in a great measure, at my recommendation. The superiority and facility afforded by the employment of this instrument over the others

* Since that period it is reported to have contracted very considerably, so that it is doubtful if an artificial palate will be required.

used for separating these bones, will be apparent to any one who will make the trial; in fact the processes of the superior maxillary and malar bones are cut with as little exertion and as smoothly, by one who has accustomed himself to the use of the forceps, as a split straw would be with a pair of fine scissors. The cutting forceps are applied with much greater ease both to patient and surgeon, and the work is much more certainly and readily completed than by means of the saw of the simple, chain, or circular kinds. Much difficulty has been experienced in fixing the osteotomes, as it is now the fashion to denominate those complicated machines, and the extent of their action is not easily limited to the hard parts. The same objections may be urged against the use of the chisel and mallet. How such instruments could at this period be selected for the purpose I cannot comprehend. If one were desirous of protracting an operation and adding to the patient's sufferings, of jarring the bones of the face and head and jumbling their contents, no more effectual means could by any possibility be contrived. The proceeding was much complained of in M. Robert's case, and I doubt not in others.

On another occasion, I may perhaps lay before the Society some remarks more particularly regarding the tumours arising from the lower jaw, and on the operations for their removal by section and disarticulation.

NOTE.

Since these observations were read to the Society, two patients labouring under tumour of the upper jaw have presented themselves at the North London Hospital, and have submitted to operative procedure. The first of them, (of whom a representation is given, Fig. 2, Plate II.,) had laboured under the disease for eight years, and had been subjected to a partial removal of the growth when of inconsiderable size. The tumour was of the same nature as those of the third and fourth cases, related above, as regards its disposition, form, and intimate structure. It differed somewhat, however, in outward appearance, in consequence of its exposed situation. The growth sprung originally from the gums and sockets of the incisors and canine tooth of the left side; at an early period it protruded from the mouth, unconfined and uninfluenced by the pressure of the lips or cheek. It had assumed a most formidable size and appearance, concealed the palate and pharynx, and gave rise to great inconvenience and continued suffering. The surface had been broken by ulceration, but upon a close inspection of the projecting part, and of that covered by the cheek, it was found to possess a firm consistence, and to present the same peculiar botryoidal arrangement of its parts, as the others of a simple and benign nature. The operation proved perfectly successful, and a permanent cure may, with confidence, be announced. The patient still remains in the hospital, until some œdema of the cheek disappears, so as to admit of the obliteration of two notches in the upper lip, the result of the former operation. The second case was of a more unfavourable nature, both as regards the kind of disease and the result. The tumour was of comparatively inconsiderable size, and of firm consistence, but communicating, at some points, an elastic feel. The parietes of the antrum, in which it was evidently seated, were unbroken. No fungus had penetrated the cavities of the mouth or nostril. The patient stated that he had led a temperate life. An unfavourable impression was taken of the case, and an excuse for avoiding interference was anxiously sought in vain. The urgent request of the patient was acceded to. The whole diseased mass was removed, as as-

certained on careful post mortem inspection, without loss of time, and with inconsiderable hæmorrhage. The shock of the operation, however, proved too much for the man's system, enervated, as it afterwards appeared, by a course of dissipation and drunkenness. The tumour had extended backwards, and its attachments to the palate bone and pterygoid process were separated with difficulty. It consisted externally of cartilaginous matter, mixed up with glairy albuminous deposit. The section presented also the remains of a clot, the result, probably, of a severe blow, to which the disease was attributed, together with a morbid mass of the consistence of cheese, yellowish, streaked with blood, and evidently originating from the lining membrane of the antrum. Both cases are correctly reported in the Lancet, Vol. I. 1836–7, pp. 237 and 343.

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